

**Table 3-8b**  
**Development of Risk-Based Concentrations for Non-Tidal Wetland Sediment**  
**Killdeer**  
**Investigation Area H1 Feasibility Study**  
**Mare Island, Vallejo, California**

$$RBC_{\text{sediment}} = BW \times TRV \times HQ / [(IR_{\text{prey}} \times BAF_1) + IR_{\text{sediment}}] \times SUF]$$

| COEC <sup>a</sup>     | BAF<br>Aquatic Invertebrate Tissue | TRV (mg/kg BW-day) |       | RBC-Sediment (mg/kg) |          |
|-----------------------|------------------------------------|--------------------|-------|----------------------|----------|
|                       |                                    | Low                | High  | TRV-Low              | TRV-High |
| <b>Inorganics</b>     |                                    |                    |       |                      |          |
| Aluminum              | 1.93E-01                           | 109.7              | 1,097 | 1376                 | 13764    |
| Antimony              | 2.32E-01                           | NTV                | NTV   | --                   | --       |
| Arsenic               | 1.92E-01                           | 5.5                | 22    | 69.2                 | 277      |
| Barium                | 1.50E+00                           | 20.8               | 41.7  | 58                   | 116      |
| Cadmium               | 2.15E-01                           | 0.08               | 10.4  | 0.95                 | 123      |
| Chromium              | 5.53E-01                           | 2.66               | 2.78  | 17                   | 17.7     |
| Copper                | 6.67E-01                           | 2.3                | 52.3  | 12.7                 | 289      |
| Lead                  | 5.07E-02                           | 0.014              | 8.75  | 0.28                 | 177      |
| Manganese             | 5.29E+00                           | 77.6               | 776   | 66.3                 | 663      |
| Mercury               | 6.96E-01                           | 0.039              | 0.18  | 0.21                 | 0.96     |
| Nickel                | 3.65E-01                           | 1.38               | 56.3  | 11.9                 | 484      |
| Selenium              | --                                 | 0.23               | 0.93  | 6.0                  | 24.2     |
| Tin                   | --                                 | 6.8                | 16.9  | 177                  | 439      |
| Vanadium              | 2.96E-02                           | 11.4               | 114   | 254                  | 2545     |
| Zinc                  | 1.51E+00                           | 17.2               | 172   | 47.6                 | 476      |
| <b>Organics</b>       |                                    |                    |       |                      |          |
| PCBs                  | 1.16E+01                           | 0.09               | 1.27  | 0.036                | 0.50     |
| Anthracene            | --                                 | NTV                | NTV   | --                   | --       |
| Benzo(a)anthracene    | --                                 | NTV                | NTV   | --                   | --       |
| Benzo(a)pyrene        | --                                 | 0.001              | 0.01  | 0.026                | 0.26     |
| Benzo(b)fluoranthene  | --                                 | NTV                | NTV   | --                   | --       |
| Benzo(ghi)perylene    | --                                 | NTV                | NTV   | --                   | --       |
| Benzo(a)fluoranthene  | --                                 | NTV                | NTV   | --                   | --       |
| Chrysene              | --                                 | NTV                | NTV   | --                   | --       |
| Fluoranthene          | --                                 | NTV                | NTV   | --                   | --       |
| Indeno(1,2,3cd)pyrene | --                                 | NTV                | NTV   | --                   | --       |
| Phenanthrene          | 2.51E+00                           | NTV                | NTV   | --                   | --       |
| Pyrene                | --                                 | NTV                | NTV   | --                   | --       |

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**Exposure Assumptions and Equation:<sup>c</sup>**

|                                     | Value   | Units               |                         |
|-------------------------------------|---------|---------------------|-------------------------|
| IRprey(dry wt.) =                   | 0.0152  | kg/day (dry weight) | -- = Not available      |
| IRinvertebrate(dry wt.) =           | 0.0152  | kg/day (dry weight) | NTV = No toxicity value |
| IRsediment (dry wt.) <sup>d</sup> = | 0.00274 | kg-day (dry weight) |                         |
| Site Use Factor <sup>e</sup> =      | 100%    | percent             |                         |
| Body Weight =                       | 0.0711  | kg                  |                         |
| Hazard Quotient (HQ)                | 1       | unitless            |                         |

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**Notes:**

- a - Constituent of ecological concern.
- b - Dry weight basis invertebrate BAFs presented in Table 3-6b.
- c - Exposure parameters used to calculate risk are discussed in detail in the BERA.
- Ingestion rate of sediment based on 18 percent of the prey ingestion rate (dry weight); based on the average of
- d - sandpipers (Beyer et al. (1994)).
- e - Site use factor was based on a conservative 100% use of the site for the killdeer's foraging range.